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Iron Ore Market.

Several rumors of sales of ore for next season's delivery have been current among sales agents in Cleveland during the past week, but representatives of the ore companies who have been to Pittsburg are unable to learn of any transactions aside from an understanding similar to that of last year between the Carnegie company, the Pewabic Mining Company and the Milwaukee Tug Boat Company. The Carnegie company is interested in the Pewabic mine, which produces a special high grade of ore, and is understood to have arranged with the owners of the Milwaukee boats, who are also connected with the mining company, for carrying 100,000 tons of ore from Escanaba to Ohio ports. The lake freight rate is currently talked of as 70 cents, but there is some question about the figure. It is known to be better than 65 cents. Notwithstanding the depressed condition of the iron market, and the fact that there is as much ore on Lake Erie docks, both as regard sold and unsold stocks, as there was this time a year ago, it would not be surprising if some transactions for next season's output are consummated earlier than in 1893. The cause for this opinion among the dealers in ore is the certainty of prices being very low. With the knowledge that ore producers will make prices very close to the actual cost of production, it is quite generally expected that furnace owners will begin negotiations as soon as they can form an idea of supplies required.

Insurance Matters.

It is now very probable that there will be no Inland Lloyd's Register for 1894. The committee of vessel owners appointed at the annual meeting of the Lake Carriers' Association to act with the several general agents of insurance companies on the lakes in the preparation of a register have heard nothing from the underwriters since they disagreed among themselves as to the location of a headquarters for the compilers of the book, and as the time for conducting the work of inspecting vessels is greatly shortened by the advance towards another season, several of the insurance men have about given up all hope of a register being published. In fact, there is little probability of an Inland Lloyd's Register ever being published again on the lakes, as such classification societies as the Bureau Veritas, American Shipmasters' Association and United States Standard Register, notably the latter, are fast gaining a foothold here, and the book that was not recognized by underwriters away from the lakes could hardly be expected to stand against the stronger organizations. It is understood that a meeting of representatives of companies that have taken risks in accordance with the classifications in the old register will be held in New York soon, to talk over a tariff of rates, and the losses from strandings of steel boats will undoubtedly be an important subject under discussion at the gathering.

For a National Naval Reserve.

Following is the text of a bill just introduced in congress providing for the establishment of a national naval militia:

"That officers and men between the ages of eighteen and forty-five serving in the mercantile marine of the United States, as also all ex-officers and formerly enlisted men of the navy, and who are citizens of the United States, who shall so elect, and who shall be found physically and professionally qualified by a board of naval officers appointed by the secretary of the navy, shall be

enrolled in a naval reserve for navigating duties, for periods not exceeding five years, in grades and ratings for which they may be found qualified, and which shall be established by the president, corresponding to grades and ratings existing in the navy;

"Provided that such officers and men shall be held to be in the United States service during such periods of enrollment, and may be called into active service in time of actual war, or when the danger of war is imminent, and shall obey such call under the pains and penalties of desertion;

"And provided further, that the officers and men of the life-saving service, and the light-house service, the revenue marine and the coast signal service may be enrolled in the naval reserves, and may be assigned to such duties and receive such annual instruction in naval warfare as the president may prescribe."

Powerful Electric Lights.

Although the United States light-house board is about to substitute an electric light of 240,000,000 candle power for the present flash light at Fire island, the British board of trade has persistently opposed the adoption of the electric light as a light-house illuminant. Opponents of the electric light in Great Britain claim that it is inferior to other kinds of light under hazy conditions of weather. The most powerful electric light in Great Britain is at St. Catherine's point, Isle of Wight, and the stranding of the Eider well within the zone of this light is referred to as proof of its inefficiency in fog. The light proposed by the United States light-house board for Fire island will be by far the most powerful light ever placed in a light-house tower. The lens, which is the largest ever constructed, being 9 feet in diameter, was bought from a French firm. It was on exhibition at the World's Columbian Exposition.

The present light at Fire island flashes at minute intervals, each flash being five seconds' duration. The new light will flash every five seconds, and will be less than a second in duration. The flashes will come with the rapidity of lightning, and will be so quick that bearings can be taken during intervals. The old light is visible under favorable conditions about eighteen miles, but the officers of the light-house board estimate that the powerful electric rays will be discernible fully twenty-four miles under similar conditions. By the aid of the new lens the light will be thrown on the heavens and its reflection will be seen, it is claimed, by vessels approaching 100 miles away. The only light in existence which will approach it in power is the one off Havre, France, which can be seen reflected on the heavens sixty miles at sea. Its candle power is about 130,000,000.

Avoid the Use of Tar Paper.

Mr. Ed. Smith of Brown & Co., Buffalo, had some experience last season with damaged wheat in the steamers Nyanza and Fedora, as well as one or two other vessels, due to tar paper being used to cover between-deck hatches. In conversation with vessel owners at the meeting of the Lake Carriers' Association in Detroit, he explained how the grain coming in contact with this paper takes the odor of the tar, and as a result is reduced in market value. The odor of the tar can not be removed by blowing, and in a single cargo a heavy loss is liable to fall on the vessel. The tar paper is a little cheaper than old canvas, but the latter, which can be secured at a moderate price in almost any sail loft, should be used for coverings when anything of the kind is required.

A Plain Definition of the Harter Act.

Through the courtesy of Mr. Frank J. Firth of Philadelphia, whose interest in the Harter act is understood by vessel owners on the lakes, we have been furnished with an advance copy of a decision by Judge Brown, of the United States district court for the southern district of New York, that will set at rest all question regarding the revolutionary features that have been claimed for this law. In the case of J. Clarence Hawkins (schooner L. Monette) vs. the schooner Viola the court decided in effect that the *act was not intended to apply to claims for damage done by a vessel to any other vessel, or to the cargo of any such vessel, through collision, but that "taken as a whole, the act seems to be dealing with the rights, relations, and remedies between ships and owners transporting merchandise, and the cargo on board, and there can be no doubt that by section 3 the act intended to absolve the vessel and owner from the claims of the cargo on board arising out of faults of navigation under the conditions stated."

In a supplemental opinion, with reference particularly to section 3, the feature of the act which has caused so much discussion in shipping circles, Judge Brown says:

"Since the foregoing decision was rendered the attention of the court has been called to the third section of the act of Feb. 13, 1893 (27 Stat. at L., Ch. 105, page 445,) which provides as follows: 'Sec. 3. That if the owner of any vessel transporting merchandise or property to or from any port in the United States of America shall exercise due diligence to make the said vessel in all respects seaworthy and properly manned, equipped and supplied (a) neither the vessel, her owner or owners, agent or charterers, shall become or be held responsible for damage or loss resulting from faults or errors in navigation, or in the management of said vessel; (b) nor shall the vessel, her owner or owners, charterers, agent, or master, be held liable for losses arising from dangers of the sea or other navigable waters, acts of God, or public enemies, or the inherent defect, quality, or vice of the thing carried, or from insufficiency of package, or seizure under legal process, or for loss resulting from any act or omission of the shipper or owner of the goods, his agent or representative, or from saving or attempting to save life or property at sea, or from any deviation in rendering such service.'

"The answer alleges that the Viola at the time of collision was engaged in transporting merchandise from ports in Canada to New York; and that her owners had exercised due diligence to make her in all respects seaworthy and properly manned, equipped and supplied. Evidence was given to that effect. Those facts are not denied, but are now admitted by the libellant; they were not referred to on the previous argument. The defendant contends that the words of the first clause of the third section above quoted are to be applied generally as respects all claims against the vessel or owner arising from faults of navigation, including claims such as this for damages to other vessels and their cargoes through collision, as well as against claims for damage to cargo on board the vessel in fault.

"This construction would annul probably nine-tenths of all the responsibilities of carriers by sea. It would involve a change in the law of shipping so radical and so wide-sweeping in its consequences that I can not believe it was the intention of congress to enact a change so revolutionary in the incidental manner, and in the connection in which this clause appears in this act. Taken as a whole, the act seems to be dealing with the rights, relations, and remedies between ships and owners transporting merchandise, and the cargo on board. The first two sections relate solely to bills of lading, and disable the owner from absolving himself or his vessel from responsibility for negligence in the stowage, care or handling of goods; while the

* Entitled "an act relating to navigation of vessels, bills of lading, and to certain obligations, duties, and rights in connection with the carriage of property," popularly known as the Harter bill of lading act.

third section, treating in part of the same subject of bills of lading, purports to relieve the vessel and owner of part of their liability under the existing law for faults of navigation. In the House of Lords, Lord Halsbury, in the case of Thames, &c., vs. Hamilton, 12 App. Cas., 484, 490, refers to 'two rules of construction now firmly established as part of our law. One is, that words, however general, may be limited with respect to the subject matter in relation to which they are used. The other is that general words may be restricted to the same terms as the specific words that precede them.' See, per Wallace, J., in U. S. vs. the Buffalo Park, 16 Blatch., 189, 190. The intention, which forms the governing principle of the law, is to be extracted from the entire enactment: U. S. vs. Collier, 3 Blatch., 332.

"Upon these maxims of construction, the general words of section 3 should be limited to the subject of the act as shown by the words that precede and follow the clause in question, viz., the mutual rights and obligations between the carrier, the carrying vessel, and the goods carried. The third section is, moreover, expressly confined to 'vessels transporting merchandise;' thus apparently excluding tugs, passenger vessels, and possibly vessels in ballast. Had the statute designed a change in the general principle of maritime responsibility, such an exclusion would not have been probable. See *In re Hohorst*, 14 Sup. Ct. Rep., 221, Dec. 18, 1893."

Iron and Steel Production in the United States.

According to statements prepared by the American Iron and Steel Association, the production of pig iron in the United States in 1893 was 7,124,502 gross tons, as against 9,157,000 tons in 1892, 8,279,870 tons in 1891 and 9,202,703 tons in 1890. The production in 1893 was 2,032,498 tons, or over 22 per cent less than in 1892. This decline occurred wholly in the second half of 1893. As compared with the first half of 1893 the production in the second half of that year shows a decrease of nearly 44 per cent., the largest semi-annual decrease in production of which there is any statistical record. The stocks of pig iron which were unsold in the hands of manufacturers or their agents at the close of 1893, and which were not intended for their own consumption, aggregated 662,068 gross tons, against 506,116 gross tons at the close of 1892. There was an increase in unsold stocks in the last half of 1893 of 112,927 tons. In addition to these unsold stocks there should be added 45,250 tons in the yards of the American Pig Iron Storage Warrant Company which had passed out of the hands of the makers, making 707,318 gross tons which may be said to have been on the market Dec. 31, 1893.

The total production of Bessemer steel ingots in 1893 was 3,123,524 gross tons, against 4,168,435 gross tons in 1892, showing a decrease in 1893 of 1,044,911 tons, or over 25 per cent. The production in the last half of 1893 was less than half the production in the first half. The production of steel rails showed a still greater decrease, being last year 1,036,353 tons, the smallest since 1885, and showing a decrease of 422,379 tons, or about 29 per cent. from 1892. Last year was no exception to the rule which has prevailed for several years past, that the rail production forms each year a smaller proportion of the total steel output, as the use of the metal for construction and other purposes extends, and the new applications for it are found, while its substitution for iron continually goes on.

It is not a new thing with the Cunard line management to lay up their largest passenger steamers in midwinter. The *Campania* and *Lucania* are laid up partly for alterations and repairs and also for the reason that it is too expensive to keep them in service at this time of year.

IF YOU SEND 50 CENTS TO THE MARINE REVIEW, NO. 516 PERRY-PAYNE BUILDING, CLEVELAND, O., AND YOU ARE NOT SATISFIED WITH THE BOUND VOLUME OF FIFTEEN PHOTOTYPES OF LAKE STEAMERS THE MONEY WILL BE REFUNDED TO YOU.

The United States Commissioner of Navigation.

Mr. Eugene Tyler Chamberlain, recently appointed to the office of commissioner of navigation by President Cleveland, is thirty-six years of age. He is a native of Albany, N. Y., and has been connected with the leading newspapers of that city



E. T. CHAMBERLAIN, COMMISSIONER OF NAVIGATION.

since he graduated from Harvard in 1878. He held editorial positions on both the Albany Journal and Argus and was engaged in other literary work as well as correspondence for leading newspapers of New York city up to the time of his appointment to the important position which he now holds. He was numbered among the friends of the president. The office pays \$3,600 a year and traveling expenses, and in addition the commissioner has the appointment of twenty subordinates.

Wood Sheathed Bottoms.

It was reported in Detroit during the annual meeting of the Lake Carriers' Association that the owners of the steel steamer Selwyn Eddy had contemplated putting a sheathing of wood on the bottom of the steamer, but had abandoned the idea upon learning, as it was claimed, that Capt. Herriman, lake representative of the Bureau Veritas, would give the vessel no better class than that accorded the best wooden ships, in event of the change being made. In this connection the following extract from a letter from Capt. Herriman will prove interesting:

"As regards the efficiency or safety of a steel plated bottom sheathed with wood, I beg to state that the method is not a common one, and one that I have had but little experience with, but when applied with care and efficiency, as I understand is being done in the case of the steel vessel now building by Mr. Frank Kirby at Wyandotte, I think it would be not only a protection to the plating but would in casual grounding be a support to the frames and floors, which I do approve of for lake waters where the vessels are so frequently taking the bottom. I regret that any remarks that I might have made on this subject should have been misconstrued, for the sheathing of a double bottom vessel can do no harm, while it will in many instances of grounding be of great benefit, and until something to the contrary is proven I shall, in classing lake steel vessels in the Bureau Veritas, give them due credit for wood sheathed bottoms when properly applied. The steel ship with wood bottom shown in the Jan. 18, issue of the REVIEW may have led to some misunderstanding. The wood sheathed, plated bottom and the plan of wood bottom shown in the issue of the REVIEW referred to may be confounded. In adopting the latter construction I hope to improve on the former, thereby making a saving of expense, not so much in the construction as in repairs when the bottom becomes damaged. While in Detroit a few weeks

since, and in conversation with Capt. Brown of Buffalo and another gentleman whose name I can not now remember, the subject of wood sheathing over iron came up, and I mentioned the case of the old iron ship Great Britain, whose plating became so thin that she was condemned by the board of trade as unseaworthy. She was, however, sheathed to her load line with $2\frac{1}{2}$ -inch pitch pine, but the fastening was defective and it was with great difficulty that they kept the ship free from water, that came in around the sheathing bolts of the perforated plating, and I think it was on her second voyage after being sheathed that she was lost and never heard from after sailing. But it was generally understood that with this vessel the work was poorly done. The statement of this fact may also have been misunderstood by my Buffalo acquaintances. I would thank you to publish this letter or its subject matter."

Bills Introduced in Congress.

Several bills of a marine nature have been introduced in congress recently. Mr. Lockwood a few days ago introduced a bill (H. R. 5,445) to provide for a semi-submerged torpedo boat for the navy—referred to the committee on naval affairs. Another bill (H. R. 5,427), introduced by Mr. Ellis of Oregon and referred to the committee on commerce, provides for an amendment to section 4,426 of the revised statutes relating to vessels propelled by steam, gas, fluid, naphtha, or motor. Other measures introduced on Monday last are:

By Mr. Chickering: A bill (H. R. 5487) to provide a life-saving station at Ontario in the state of New York—to the committee on interstate and foreign commerce.

By Mr. Richtie: A bill (H. R. 5488) to amend section 3117 of the revised statutes in relation to the coasting trade on the great lakes—to the committee on interstate and foreign commerce.

By Mr. Maguire: A bill (H. R. 5501) to amend sections 4556, 4557, 4558 and 4559 of the revised statutes, relating to the inspection, equipment and repair of merchant vessels—to the committee on merchant marine and fisheries.

Also, a bill (H. R. 5502) to repeal sections 4532, 4533 and 4534, and to amend sections 4516 and 4529 of the revised statutes all relating to the employment of seamen on merchant vessels—to the committee on merchant marine and fisheries.

Also, a bill (H. R. 5503) to amend sections 4596 and 4597 of the revised statutes, relating to offenses committed by seamen employed by merchant vessels, and to provide punishments for such offenses—to the committee on merchant marine and fisheries.

Also, a bill (H. R. 5504) to amend sections 4520, 4522, 4526, 4530, 4547, 4561, 4564, 4566, 4572 and 4612 of the revised statutes, relating to the employment, care, discharge and payment of seamen employed on merchant vessels—to the committee on merchant marine and fisheries.

Also, a bill (H. R. 5505) to amend sections 4581, 4582, 4583, and 4600 of the revised statutes, and to repeal sections 19 and 20 of an act entitled "An act to remove certain burdens on the American merchant marine and to encourage the American foreign carrying trade, and for other purposes," approved June 26, 1884—to the committee on merchant marine and fisheries.

Also, a bill (H. R. 5506) to regulate the construction of seamen's quarters on merchant vessels, to provide for the security and comfort and to prevent the oppression of American seamen employed on merchant vessels—to the committee on merchant marine and fisheries.

Representative J. A. Caldwell of Ohio has introduced in the house another bill providing for a survey for a ship-canal to connect the waters of Lake Erie and the Ohio river. The measure will, of course, like many others of its kind be buried by the committee on commerce.

A Boat for Honduras.

A 10x12 marine engine will be built by the Sheriffs Manufacturing Company of Milwaukee for a boat being built for the Honduras Transportation Company of Racine, Wis. The engine will be from the Sheriffs' company's new model and good results are expected from it. The boat building by the Honduras company, of which John T. Vaughan of Racine is president, will be about 70 feet over all and 14 feet beam. All fastenings will be galvanized and copper painted. The company intends to use the vessel along the coast and up the rivers of Honduras, Central America. She will carry freight and passengers.

Iron Mining Matters.

As a result of the dealings with Ferdinand Schlesinger, which resulted in a complete failure of the Buffalo mining company and embarrassment to the firm of Corrigan, Ives & Co. of Cleveland, several months ago, the latter firm has come into possession of the lease of the properties of the mining company at Negaunee, Mich., as well as all machinery and equipment of the mines. Price McKinney, receiver for Corrigan, Ives & Co., purchased on Monday last at Sheriff's sale the lease of the group of mines, which includes the Buffalo, South Buffalo, Queen and Prince of Wales, at \$320,000, and the equipment at \$80,000. These mines produced 479,509 tons of ore in 1891, 379,719 tons in 1892 and 106,864 tons last year.

The Duluth Stock Exchange is again sending out quotations on Missabe stocks. Here are some of the prices asked: Biwabik Mountain Iron Company, \$24; Great Northern Mining Company, \$3.50; Lake Superior, \$2.50; Mountain Iron, \$65; Missabe Mountain, \$17; Shaw, \$3; Security Land and Exploration Company, \$15; Adams, \$9; Buckeye, \$2.50; Great Western Mining Company, \$2.25; Missabe Central Land and Exploration Company, \$6; Missabe Chief, \$2; Ohio, \$8; Tonawanda, \$2; Zenith, \$1.25.

Pumps have been removed from the Brotherton mine, Gogebic range, and work of all kinds suspended. The mine has shipped 401,355 tons of ore since 1886, when it was among the first properties developed on the Gogebic. Shipments in 1893 amounted to only 18,905 tons, against 130,833 tons in 1892. The ore is wet but of very good quality. A heavy cost attached to mining is the main cause of suspension.

Leopold Kreilsheimer, who was in charge of Ferdinand Schlesinger's Milwaukee office last July, and for several years before that time, testified in the South Side Savings Bank case at Milwaukee, recently, that in 1889 the net profits of the Chapin mine were \$563,498.82; in 1890 they were \$561,813.18; in 1891, \$176,224.51, and in 1892, \$639,034.34.

Encountered an Iceberg

(From the New York Tribune.)

The good ship San Joaquin is in port from Hiogo, Japan. According to the captain, the ship came in collision with an iceberg four miles long and 1,500 feet high. The first mate says the berg was longer than four miles, but both the captain and mate agree as to its height, and the wandering mountain of ice is officially entered in the ship's log as being 1,500 feet high. The San Joaquin was off Cape Horn when she encountered the iceberg. She had weathered the cape, and was well started on her way up the Patagonian coast. The date was Sept. 9, and 9 o'clock at night. It was thick weather and there was a chilliness in the air which bespoke the presence of ice. The commander of the ship, Captain Larrabee, was on the poop deck and the second mate was on the topgallant forecastle. The captain's sister was on deck with him. All were keeping a sharp lookout. They saw before them a light-appearing mass, which was so large that they thought it was the horizon clearing. Then bang the ship went into the iceberg, and swung around port side on. By the red gleam of the port light the people on deck could see a great mass of ice with dark and cavernous fissures and a toppling cornice that threatened to fall on them and crush them. Tons of the overhanging ice actually did fall on the deck, and the sailor at the wheel left his post and rushed in a panic about the deck.

The captain's sister grabbed the spokes the cowardly man had left and steadied the ship. She is a Maine woman and is thirty-five years old. She had been making the trip with her brother for her health. The captain ran to his sister's assistance, but they could not keep the ship clear of the great berg. Then the captain gave orders to back the mizzen yard, and the ship slowly got sternway on and slid away from the great island of ice.

The next morning the San Joaquin was fifteen miles away from the ice island, but it was still in sight, and Captain Larrabee at once went to work to get the size of the berg and to repair damages. The crash had caused a lot of trouble for the captain, as the foremast was gone about fifteen feet from the deck, the jibboom and bowsprit had been swept away, the topgallant foremast had been reduced to kindling wood by the ice which had fallen on it, and the main topmast and topgallant mast and the mizzen top gallant mast were gone. Before the sun set the cap-

tain had rigged a jury foremast and a jury bowsprit, and was standing on his course for New York, with the iceberg stretching along the horizon behind him.

If the berg was eight miles long, as the mate is ready to take his affidavit that it was, there must have been over 2,000,000,000 cubic feet of ice in it. It had wandered up from the Antarctic ocean, and is probably as big a berg as there is any record of. The San Joaquin stopped at Barbadoes on her way up, but did not refit then. Seven white men and eight Japanese compose her crew.

Around the Lakes.

Toledo authorities contemplate building a fire boat.

Capt. Daniel Sullivan will sail the steamer W. H. Wolf of Milwaukee next season.

Alfred Morrill is building two wooden tugs and a small passenger boat at Collingwood, Ont.

Capt. Andrew Clark, a retired vessel master, aged sixty-two years, died at Holland, Mich., a few days ago.

Capt. John H. Smith, an old vessel master and a resident of Grand Haven for forty years, died at that port Saturday.

The three steamers and the schooner under construction at West Bay City by Capt. James Davidson are building for a class in the United States Standard Register.

Sizes of the three tugs being built by the Globe Iron Works Company for L. P. & J. A. Smith are: No. 54, 80 by 18 by 12 feet; No. 55, 55 by 14 by 8 feet; No. 56, 70 by 16 by 9 feet.

Capt. E. B. Graham of Fish Creek, Wis., had expected to build a small steamboat this winter, but has given up the idea for the present and will buy a boat if he can find one to suit his purpose.

Vessel owners who have been claiming that harbor towing rates at Buffalo are too high in comparison with the charges at other ports around the lakes, will probably support O. W. Cheney if he is in earnest in his proposition to begin competition next season with the old lines.

Capt. P. L. Millen, charged with violating the rules and regulations of the St. Clair canal, was fined \$50 by Judge Swan of the United States district court at Detroit Wednesday. Capt. Millen was master of the steamer Joliet and was charged with having passed another vessel while in the canal.

The Western Transit Company will continue its three passenger boats, Idaho, Empire State and Badger State, on the Lake Superior route next season, and the Anchor Line will operate the India, China and Japan as formerly, so that there will be no change in what is to be sailed as practically one fleet, each line taking alternate days for sending out its boats.

A western builder of whaleback vessels, evidently Capt. Alex. McDougall, or some other member of the American Steel Barge Company, has had several conferences recently with Mr. Herbert, secretary of the navy, with reference to the construction of whaleback ships of war. It is well known, of course, that Capt. McDougall holds several patents on designs of whaleback naval vessels.

Marine engineers of both Cleveland and Marine City have favored us with invitations to their annual social gatherings. The Marine City division will dance tonight at the city hall and the ball and banquet in Cleveland will be held on the 6th inst at Army and Navy hall. The Cleveland engineers show a commendable spirit in deciding to give the proceeds of this event to the associated charities of the city.

M. E. B. A. No. 47 of Sault Ste. Marie was delayed in electing officers until last week. The list for 1894 is: Arthur Adams, past president; Peter Kelly, president; Jared Cook, vice-president; Norman Rains, recording and financial secretary; Moses Beauchamp, treasurer; Peter Kelly, corresponding secretary; David Sebastian, chaplain; John McDonald, conductor; William Tate, door-keeper.

The Star-Cole and Red Star lines of Detroit have entered into a combination to govern the running of four passenger boats of the two lines next season. The Greyhound, Arundell and Idlewild will run between Detroit and Port Huron and the Darius Cole between Toledo and Detroit. The arrangements will give a daily service of three boats between Detroit and Port Huron. The service between Detroit and Toledo will be as it was last season.

Harbor Tugs on the Lakes.

Although harbor towing companies on the lakes have for many reasons been slow in adopting steel instead of wood for the construction of tugs, it is probable that the number of steel hulls for this type of vessel will increase in the near future. The construction of three steel hulls by the firm of L. P. & J. A. Smith of Cleveland, and the fact that this same firm is considering the advisability of building steel hulls for machinery in several other old wooden boats are indications of the tendency in favor of steel. Still, some of the best tugs around the lakes are wooden boats. The William Kennedy, one of the fleet of the V. O. T. line, Cleveland, illustrated on this page, is representative of the best class of wooden boats of her kind. She is 74.8 feet keel, 84 feet over all, 20.5 feet beam and 10.4 feet deep. Her engine is 25 by 28, and the boiler, 14 by 9 feet, is allowed 150 pounds of steam. Her tonnage is 86 gross tons and 43 net. She was built by the Union Dry Dock Company of Buffalo.

Longest Jetty in the World.

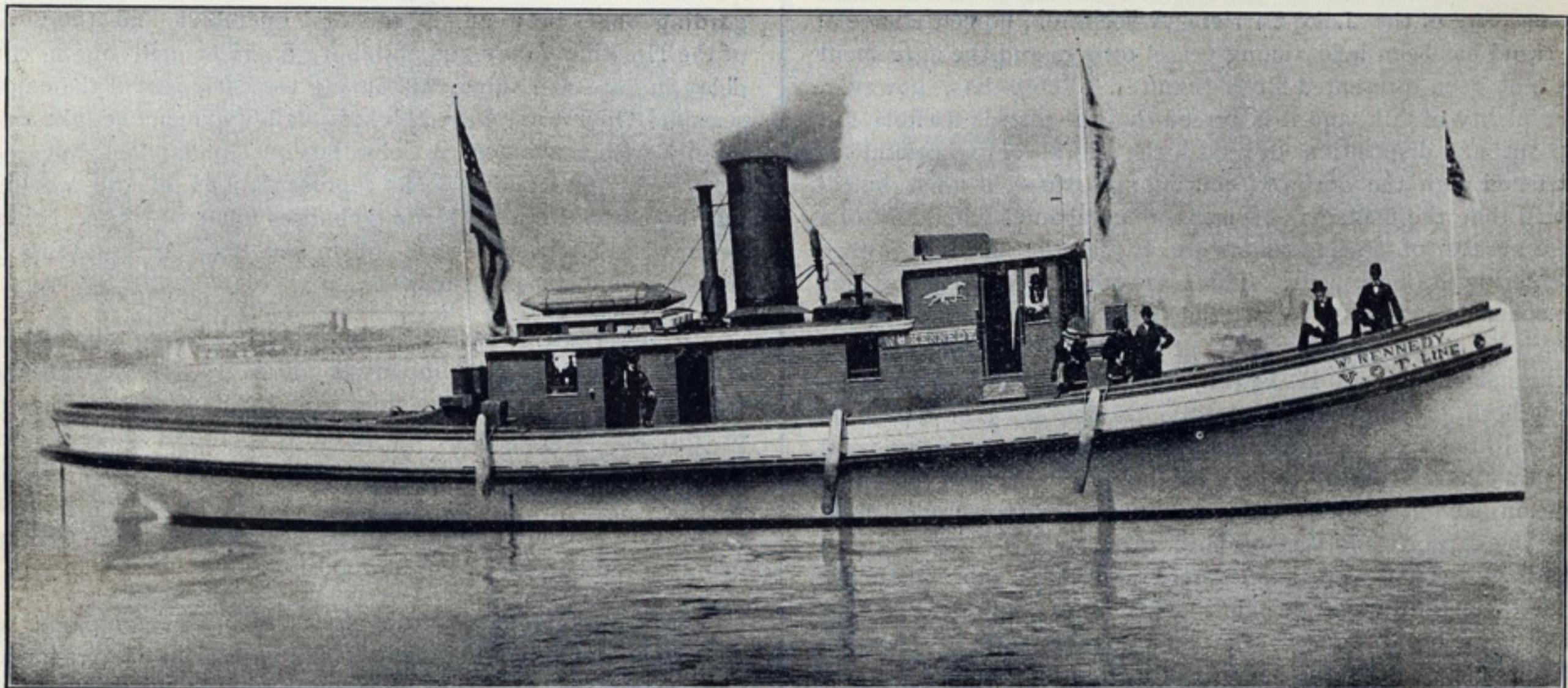
At the mouth of the Columbia river the United States government is building what will be the longest jetty ever constructed. It will also enjoy the distinction of being one of the very few public works with ultimate total cost far short of the original estimates.

The Columbia is by far the largest river west of the Rock-

ies through the main channel and anchor in the harbor one mile further inland, within cable length of the shore.

But the surprising part of the building of the jetty, and that which reflects great credit upon the engineers in charge, is that while the construction is pronounced first-class throughout and every way up to the specifications, the total cost will fall short of the original estimates by more than \$1,500,000. Careful and intelligent computations made in 1882-1884 placed the necessary total cost at \$3,710,000. Thus far the requisitions have amounted to but \$1,687,000, while less than half a million dollars more will pay every bill on its account. In fact the jetty itself is completed, receiving only some finishing touches, but two smaller supplementary jetties are being added to perfect the action of the main structure.

The jetty is over four miles long, 15 feet wide at the top, and built up to high water mark. The lava blocks that form the filling were quarried near Portland and transported in barges and by rail to the point where needed. Over 6,000 piles were driven in the space covered by the jetty, the piles being forced down by a huge hydraulic pile-driver. This powerful driver, with its 6,000-pound hammer, rests upon a tramway and is moved forward as required, while the entire framework revolving upon a wheel, whose radius is $31\frac{1}{2}$ feet, admits of operating the machine through a corresponding large circumference. The huge hammer, however, was but seldom used in driving a pile,



A SPECIMEN OF THE BEST TYPE OF WOODEN HARBOR TUGS ON THE LAKES.

ies, being considerably over 1,000 miles in length, and for 100 miles from its mouth navigable for the largest ocean vessels. At its mouth, too, is a splendid harbor, capable of sheltering in safety the largest vessels afloat. It is the only safe harbor between San Francisco, 600 miles to the south, and the Straits of Juan de Fuca, 200 miles to the north. However, prior to 1885 the harbor was of little use, because of the shifting sands that opposed a bar first to one side then to the other, and all the way from Cape Disappointment on the north to Point Adams on the south. The United States government, recognizing the value of this harbor to our commerce, both present and future, sent her most competent engineers to survey the harbor and present a plan to form a permanent deep water channel. The plans that were finally adopted were for a jetty from Point Adams out into seething waters for between four and five miles, to be constructed of basaltic rock or lava. This, it was predicted, would entirely close up the south channel or Tillamook chute and present a firm break to catch the sands that would otherwise form the shifting bar in the north or main channel. That effected, the powerful current of the vast body of water which the Columbia pours into the Pacific would keep open a natural and perfect gateway into the harbor. The jetty is now practically completed and the engineers' predictions fully realized. On the south side of the jetty, where formerly there was water from 6 to 20 feet in depth, is now over 4000 acres of dry land, formed by the wash of the sea, while the largest ocean vessels sail without

except to give the final blow or two that "set" the long timber in its bed of sand. When sinking a pile, the hammer was allowed to rest on its head. Two $2\frac{1}{2}$ -inch iron pipes on either side of the pile sent streams of water, forced by a duplex power pump, to open the sand beneath, and the weight of the hammer alone was sufficient to settle the pile. The construction has been done entirely under the charge of United States Engineers Powell and Thos. H. Handbury, the latter having been in charge since 1888. None of the work was let out by contract; day labor at eight hours for a day's work, under the direct supervision of the government officers, has accomplished the satisfactory results obtained. A model of the jetty, representing 400 feet of its length, was exhibited in the government building at the world's fair, and attracted the favorable comment of both home and foreign engineers who inspected it.—American Contractor.

A big electric lighting plant, involving an expenditure, according to first estimates, of about \$500,000, is to be established by the city of Detroit. Bids on dynamos, engines, boilers, etc., were opened Tuesday, and S. F. Hodge & Co. of Detroit were found to have made the lowest proposal on engines, of which there are to be five, either triple expansion or compound. Hodge & Co.'s bid on triple engines was \$20,000 and on compound \$17,000. The bids are complicated, however, and there is no certainty as to how the contracts will be let.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

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ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

VESSEL owners in all parts of the lakes are, of course, looking to Cleveland for the first move in the matter of securing signatures to the agreement under which it is proposed to lay up 25 per cent. of the vessel tonnage during next season. On account of the absence of President Corrigan from the city since the meeting of the Lake Carriers' Association, no conference of any kind has been held among vessel owners, and the agreement has not been presented for signatures. There has, however, been plenty of talk, and it is agreed that the plan is feasible, but without any disposition to retard the efforts of the committee entrusted with the work of securing signatures, it must be admitted that the managers of iron ore companies who control a large number of steel steamers are, to say the least, backward in entering the movement. This class of tonnage, without which the scheme can not be carried out, was not represented by the principals of the ore companies at the Detroit meeting. While such men as Harvey H. Brown, L. C. Hanna and others, managing both ore and vessel interests, do not say positively that they will not sign the proposed agreement, they raise the point that they have nothing to gain by holding vessels in port that have an advantage over ordinary tonnage, on account of great carrying capacity and the special despatch which they receive at all times. They also claim that they can not anticipate the future, as regards the demand for iron ore, and must run the boats if the ore producers find business for them in sales that may be made before the opening of navigation. The boats will remain tied to the docks, they add, if there is not business for them at a profit when the season opens, but this statement is of no importance when the aim of the agreement to bring about a specified time of idleness for all tonnage is considered. Altogether there is yet as much uncertainty about the laying-up movement as there has been at any time in the past.

CAPTAINS and engineers, as well as all other employes on lake vessels, are expecting a reduction in wages with the opening of navigation, but in taking up this subject, which must come before the finance committee of the Lake Carriers' Association very soon, it would be well for the vessel owner to first consider how little he can reduce the cost per ton of carrying freight by cutting down labor to the lowest possible figures, and thus taking the chances of getting poor help, or at the best a dissatisfied crew. After a little figuring, we venture the prediction, without fear of contradiction, that if the schedule of wages is reduced to a basis of \$100 for chief engineers on the big steel boats, all other classes of labor being cut proportionately, such reduction would not make a difference in the cost of carrying freight of more than 1½ cents a ton, even on the largest boats having superior advantages. This is a fact that shows very plainly that the necessary material reduction in operating charges can not come out of the labor cost. Vessel owners can figure it out for themselves. For vessels in the ore trade, trimming charges and handling

charges at lower lake ports, together with other operating expenses aside from labor, can and should be reduced 5 or 6 cents a ton in all, but there is not the opportunity to reduce labor that might be expected at first thought. The \$100 figure for chief engineers on big metal boats is mentioned simply for the reason that that rate has been talked of. Several of the managers of the large fleets, especially among the iron ore companies, are, however, in favor of \$110 instead of \$100 as the maximum figure.

IN the report in which State Engineer Schenck of New York objects to any legislation favorable to the enlargement of the Erie canal, to dimensions that would permit of the passage of grain in unbroken bulk from the lakes to Europe, he says that the cost of such an improvement would be about \$500,000,000, and that before it would be completed our present northern international boundary may have ceased to exist. In his estimate of cost Mr. Schenck is undoubtedly too high, but the advantages of the St. Lawrence route, together with the possibility of a union with Canada at some time in the future, are admitted on all hands to be the greatest drawbacks to a radical enlargement of the Erie.

IT would seem as though a wide difference of opinion regarding wages between the soft coal operators and the miners of the Hocking valley and Pittsburg districts will again cause delay in lake coal shipments during the early part of the coming season. Operators of the Hocking valley district sought a conference with the miners at Columbus on Monday last, but to the surprise of the employers, no representatives of the workmen put in an appearance. Mining charges must, of course, be fixed before sales can well be made or in fact any arrangements perfected for the season's business.

A GENTLEMAN very well informed regarding affairs of the Northern Steamship Company is authority for the statement that boats of that line carried flour from the head of Lake Superior to Buffalo last season at an actual expense of 70 cents a ton, after insurance, a liberal percentage for depreciation, etc., had all been included in the charges. There is evidently a fair profit in this trade for the steamers that have had a slice of it during the past few seasons at good freights.

MANAGERS of some of the marine insurance companies who have been worrying about certain features of the Harter law can now rest assured that the act contains none of the revolutionary provisions attributed to it by certain admiralty lawyers of New York. Judge Brown of the United States district court, New York, who is recognized as one of the highest admiralty authorities in the country, defines the act very clearly in an opinion published elsewhere in this issue.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Jan. 27, 1894:

	Wheat, bu.	Corn, bu.
Chicago	20,498,000	4,148,000
Duluth.....	10,004,000	72,000
Milwaukee.....	887,000	.....
Detroit.....	1,667,000	30,000
Toledo.....	2,767,000	855,000
Buffalo	2,337,000	588,000
Total	38,160,000	5,693,000

At the points named there is a net increase for the week of 128,000 bushels of wheat and a net decrease of 185,000 bushels of corn.

Instead of the usual annual banquet and its accompanying festivities, the shipmasters of Cleveland on Wednesday evening of this week gave a social and musicale at their spacious lodge rooms. The affair was very much enjoyed.

Illustrated Patent Record.

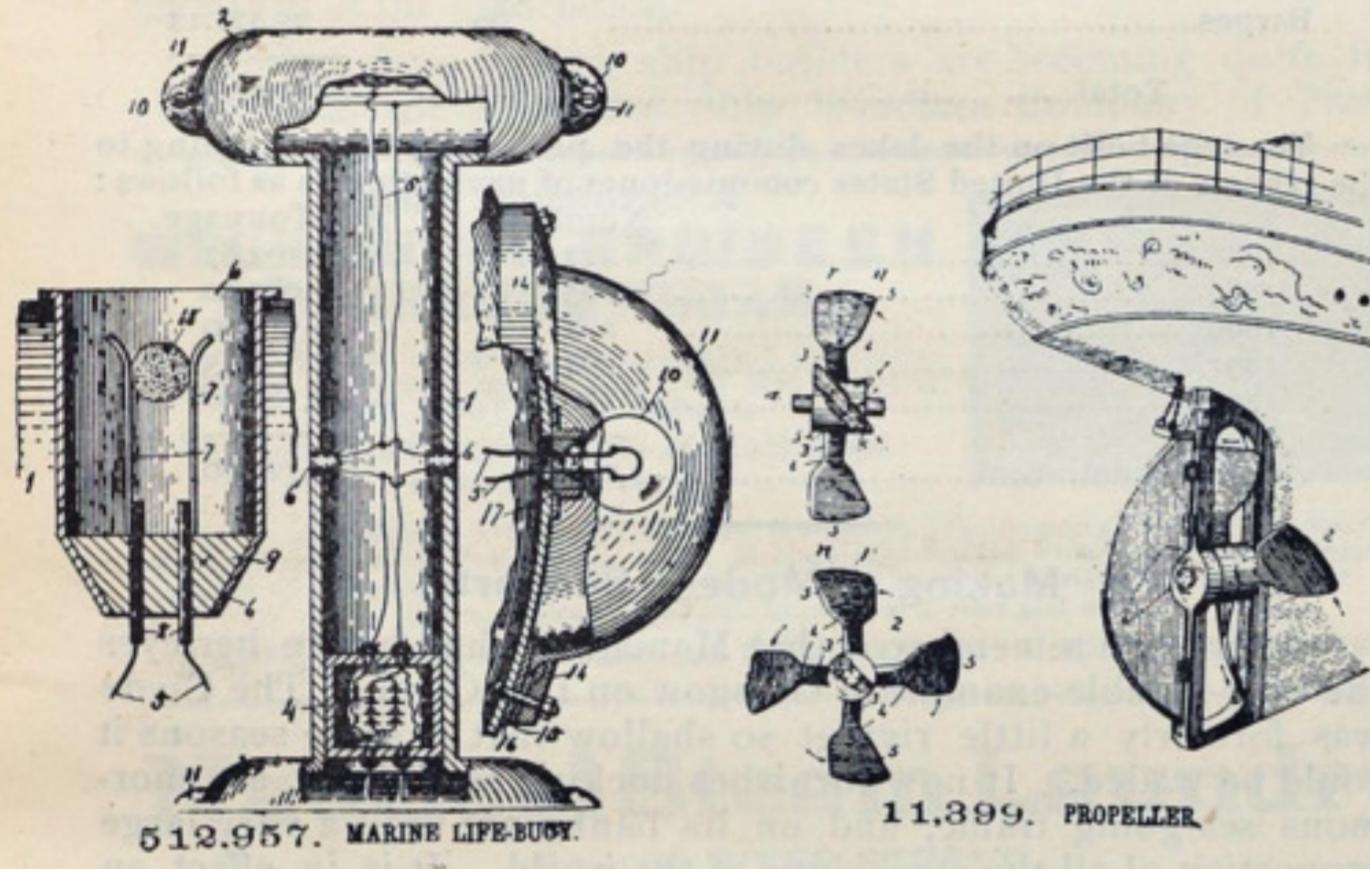
SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

512,957. MARINE LIFE BUOY. James A. Guest, Washington, D. C., and James H. Bates, Hoboken, N. J. Filed Feb. 28, 1893. Serial No. 464,146. (No model.)

Claim: First, in a life buoy, in combination, an electric lamp, a circuit in which the lamp is included, a source of electricity and an electric switch, both carried by the buoy, said switch contacts being normally insulated by a material whose insulating power is destroyed by water. Second, a life buoy, provided with a ballasting arm, an electric battery carried thereby, an upward projecting arm, an electric lamp thereon, and an electric circuit connecting said battery and said lamp.

513,190. SHIP'S BERTH. Edward Lawson, Birmingham, England. Filed Feb. 9, 1893. Serial No. 461,557. (No model.) Patented in England Nov. 26, 1887, No. 16,288.

Claim: In a berth turning up into an approximately vertical position, the combination with the berth frame and supporting projections therefor, of vertical pins standing up from the inner ends of the berth frame to a height above said frame equal to half the space required for the bedding between the



512,957. MARINE LIFE-BUOY.

11,399. PROPELLER.

518,190. SHIP'S BERTH.

513,466. ELECTRICAL MEANS FOR PROPELLING CANAL BOATS.

513,424. LIFE-BOAT.

berth when turned up and the wall against which the berth is disposed, and gudgeons on which the berth turns, carried by said projections at a distance from the wall equal to half the space required for the bedding between the berth when turned up and the wall, and disposed within the inner edge of the berth frame, and rearwardly extending links, horizontal when the berth is turned down, connecting said vertical pins with said gudgeons, whereby when the berth is turned up its lower edge occupies the same vertical position as that of the bottom of the berth when turned down, and sufficient space for the bedding is left between the berth when turned up and the wall.

513,424. LIFE BOAT. August Schonemann, Hasseroode, Germany. Filed Apr. 28, 1893. Serial No. 472,210. (No model.)

Claim: A life or other boat having a frame built of steel hoops or stringers A A and B B and steel rings u covered with india rubber or leather and propelled by means of paddle wheels Z' rotated by hand from the inside of the boat by means of cranked shafts, one of which is fitted with an eccentric y giving motion to the bellows b so as to introduce fresh air into the interior of the boat and expel the foul air therefrom.

513,466. ELECTRICAL MEANS FOR PROPELLING CANAL BOATS. Joseph Sachs, New York, N. Y. Filed Feb. 15, 1893. Serial No. 462,402. (No model.)

Claim: The combination of two rails placed side by side, a carriage having rollers adapted to bear against the upper and lower sides of said rails, springs causing said rollers to firmly grasp the rails, an electric motor on the

carriage for driving it, means for connecting the carriage to a boat, and means traveling with said motor for regulating the same.

11,399. (RENEWAL) PROPELLER. Alfred W. Case, Highland Park, Conn. Filed Oct. 16, 1893. Serial No. 488,349. Original No. 496,857, dated May 9, 1893.

Claim: First, a screw propeller comprising a hub with projecting blades each of which has its uninterrupted working surface developed by a straight generatrix, and set on an angle across the axis of the hub and also inclined forwardly from the base of the working surface, whereby each blade operates to thrust outwardly as well as rearwardly when in motion. Second, a screw propeller consisting of a hub with a plural number of projecting blades, each blade having a shank terminating in a lobe or fluke, said fluke having its working surface developed by a straight generatrix, and set on an angle across the axis of the hub and also inclined forward from the base of the working surface.

Portage Lake Canal Traffic in 1893.

Major G. A. Marr, army engineer officer in charge of the Portage Lake canals in the copper region of Lake Superior, has made public a statement of the Portage lake canal traffic during the season of 1893. There was during the season a decrease in the number of vessels passing the canals as compared with 1892 but an increase in the tons of cargo carried. In 1893, 1,408 vessels of a net tonnage of 664,510 tons carried 532,628 tons of cargo, as against 496,288 tons of cargo carried by 1,470 vessels of a net tonnage of 665,063 tons in 1892. This shows that the improvements in the canals have resulted in an increase in the size of cargoes carried. The increase of registered tonnage over freight tonnage also shows that the vessels engaged in this trade were capable of carrying much larger cargoes than the canal draft will warrant. A tabulated statement of the traffic follows:

PORTAGE LAKE CANAL TRAFFIC, SEASON OF 1893.

	Up.	Down.	Totals.
Vessels.....	868	540	1,408
Tonnage, net registered.....	435,195	234,314	669,510
Passengers.....	14,592	12,492	27,084
Coal, tons.....	254,705	.....	254,705
Copper, tons.....	9,864	54,548	64,412
Iron ore, tons.....	.....	400	400
Manufactured iron, tons.....	8,946	.....	8,946
Pig iron, tons.....	.....	3,189	3,189
Limestone, tons.....	9,356	.....	9,356
Building stone, tons.....	.....	1,180	1,180
Grain, bushels.....	34,264	4,000	38,264
Flour, barrels.....	125	215,423	215,548
Salt, barrels.....	23,985	.....	23,985
Lumber, M ft.....	.....	42,863	42,863
Miscellaneous, tons.....	71,836	11,336	93,172
Total cargo, tons.....	360,669	171,959	532,628

Ship Canal Across Florida.

A ship canal across Florida is again talked of. Southern newspapers say that a final survey will be made shortly. The canal is intended to be 150 miles long, about 300 feet wide and deep enough to accommodate large ships. It will, according to estimates, reduce the distance from New Orleans to Liverpool 1,000 miles. The Charlestown News and Courier says: "Who is pushing this undertaking is not stated, but it is an interesting and important one. It will shorten the distance from all the chief Atlantic ports to New Orleans as much as from Liverpool to New Orleans. It will make the distance by water from Charleston to New Orleans and Mobile less than from Charleston to New York and Philadelphia. It will revolutionize the commerce of the gulf and add greatly to the business of all the gulf ports. It will make Alabama coal, moreover, nearly as cheap in Charleston as in Mobile, and western coal and corn and wheat, etc., nearly as cheap in Charleston as in New Orleans."

National Association of Marine Engineers.

Special Correspondence to the MARINE REVIEW.

WASHINGTON, D. C., Feb. 1.—The new list of officers in the National Association of Marine Engineers, as elected at the annual meeting held here last week, is as follows: George P. Wilson of Philadelphia, past president; George Uhler of Philadelphia, president; Fred. Nixon of San Francisco, vice-president; Thomas F. Dowd of Chicago, secretary; John Williams of New Orleans, treasurer; George W. Rouse of New York, chaplain; Joseph F. Lance of Buffalo, conductor; E. F. Lock of Toledo, doorkeeper. The convention in 1895 will be held in this city. Chief Engineer Melville, U. S. Navy, addressed the association during one of its sessions and Gen. James A. Dumont, with the full board of supervising inspectors of steam vessels, also favored the organization with an extended visit.

Nine ships of the navy will be ready for commission and active service between now and April 1. They are: Columbia, March 1; Marblehead, Feb. 1; Atlanta and Alert, April 1; Marion, now on her way from China, April 1; the Cincinnati, at New York, and the Raleigh, at Norfolk, April 1; the Montgomery, about the same time, and the Boston early in March. These vessels can not all be assigned to stations without an increase in the enlisted force.

East-bound Shipments—Lakes vs. Ten Trunk Lines.

As against ten trunk line railways carrying grain, flour, provisions, etc., eastward from Chicago, lake vessels secured 63.3 per cent. of the entire eastbound freight business out of that city during thirty-four weeks of navigation in 1893. In 1892 the per centage of freight moved by lake was 58.7 and in 1891 58.4. The gain in 1893 was, of course, due partly to the great pressure of world's fair passenger traffic on the railways, but the very low range of freights that prevailed on the lakes undoubtedly had most to do with it. The figures presented below are prepared from weekly reports of the Central Traffic Association. The ten lines of railways that compete with the lakes for this business, and whose tonnage is included in the rail shipments, are the Wabash, Big Four, Michigan Central, Lake Shore, Fort Wayne, P., C., C. & St. L., B. & O., Grand Trunk, Nickel Plate and Chicago & Erie.

EAST-BOUND SHIPMENTS OF FREIGHT OF ALL KINDS OUT OF CHICAGO DURING THE NAVIGATION SEASON FOR THE PAST THREE YEARS.

SEASON OF	Moved by lake.		Moved all rail.		Total, net tons.
	Amount, net tons.	Per Cent.	Amount, net tons.	Per Cent.	
1893.....	3,187,622	63.3	1,846,128	36.7	5,033,750
1892.....	3,052,014	58.7	2,145,180	41.3	5,197,194
1891.....	2,705,084	58.4	1,560,850	41.6	4,265,934

EAST-BOUND SHIPMENTS OF FREIGHT OF ALL KINDS OUT OF CHICAGO, BY WEEKS, DURING THE NAVIGATION SEASON IN 1893.

Week ending	Moved by lake.		Moved by rail.		
	Amount, net tons.	Per cent.	Amount, net tons.	Per cent.	
April 20.....	279,838	81.4	63,890	18.6	
April 27.....	84,208	56.4	64,967	43.6	
May 4.....	82,127	60.4	53,922	39.6	
May 11.....	53,186	48.1	60,425	51.9	
May 18.....	63,000	54.	53,647	46.0	
May 25.....	65,557	54.8	54,281	45.2	
June 1.....	86,756	61.5	54,315	38.5	
June 8.....	104,056	62.6	62,172	37.4	
June 15.....	92,481	60.5	60,162	39.5	
June 22.....	82,277	60.0	56,754	40.0	
June 29.....	66,916	58.7	47,102	41.3	
July 6.....	74,404	61.7	46,266	38.3	
July 13.....	78,466	61.0	50,325	39.0	
July 20.....	66,362	57.7	48,618	42.3	
July 27.....	96,167	65.3	51,065	34.7	
August 3.....	84,239	61.0	50,666	39.0	
August 10.....	78,348	62.0	49,572	38.0	
August 17.....	74,859	62.1	44,747	37.9	
August 24.....	72,247	61.9	44,439	38.1	
August 31.....	80,718	61.2	51,077	38.8	
September 7.....	79,615	60.1	52,604	39.9	
September 14.....	124,071	70.1	52,892	29.9	
September 21.....	112,785	70.0	48,002	30.0	
September 28.....	166,703	76.0	52,686	24.0	
October 5.....	128,032	69.5	56,130	30.5	
October 12.....	140,274	71.5	55,980	28.5	
October 19.....	114,294	69.0	64,049	31.0	
October 26.....	161,694	71.8	63,573	28.2	
November 2.....	72,609	55.8	57,515	44.2	
November 9.....	100,648	64.1	56,154	35.9	
November 16.....	81,010	59.1	55,676	40.9	
November 23.....	66,436	55.0	54,481	45.0	
November 30.....	47,040	52.0	45,306	48.0	
December 7.....	23,154	26.5	62,668	73.5	
Total.....	3,187,622	63.3	1,846,128	36.7	

Admeasurement of Vessels.

A short time ago the collector of customs at Detroit wrote the treasury department with reference to some questions coming up in the work of calculating the tonnage of the steamer No. 103, being built by the Detroit Dry Dock Company. The answer of Mr. T. B. Saunders, acting commissioner of navigation, which follows, may prove interesting to other collectors of customs as well as builders of steel vessels:

"Referring to the instructions to you of July 1, 1890, that the space between double bottoms to be used for water ballast of vessels with iron or steel hulls need not be admeasured for tonnage, if not available for cargo, stores or fuel, this office has to state that in such cases the depths for the various cross sections should be taken to the upper side of the inner plating of the double bottom, or, as described in the case of steamship No 103 submitted by you, 'to the pine ceiling on top of the water bottom.' Such admeasurement is considered to be that prescribed by section 4153, revised statutes, which directs that the depths be measured 'to the upper side of the floor timber at the inside of the limber strake, after deducting the average thickness of the ceiling

which is between the bilge planks and the limber strake.' The register depth under section 4150, revised statutes, does not govern the admeasurement for tonnage, but is ascertained to indicate the size of the vessel, and, to some extent, her draft when loaded. For the purpose of finding such register depth, therefore, 'the ceiling of the hold (average thickness,) mentioned in said section, will be considered the main frame of the vessel under the water ballast."

Tonnage of the Lakes.

The books of the United States treasury department contain the names of 3,657 vessels, of 1,183,582.55 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1892, was 321 and their aggregate gross tonnage 534,490.27; in all other parts of the country the number of this class of vessels was, on the same date, 217 and their gross tonnage 321,784.6. The classification of the entire lake fleet is as follows:

Class.	Number.	Gross.
Steam vessels	1,631	763,063.32
Sailing vessels	1,226	319,617.61
Canal boats	731	75,580.50
Barges	69	25,321.12
Total	3,657	1,183,582.55

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Number.	Net Tonnage.
1888.....	222
1889.....	225
1890.....	218
1891.....	204
1892.....	169
Total.....	1,038
	473,723.60

Making of Modern Seaports.

It is to be remembered that Manchester had before her eyes the ever notable example of Glasgow on the Clyde. The Clyde was formerly a little rivulet so shallow that at some seasons it could be waded. It now furnishes docking facilities to an enormous sea-going traffic, and on its banks are built a very large proportion of all the steel ships of the world. It is in effect an artificial ship-canal some thirty feet deep, maintained by the Clyde Navigation Trust of the city of Glasgow. Scores of millions have been spent upon it, and Glasgow has its reward in its proud rank as the first city of the British empire excepting London. The German ports have, especially since the establishment of the present empire, become keenly alive to the value of the best possible harbor and dock facilities. Hamburg, which lies well inland on the Elbe, has within the past ten years expended, including subsidies from the imperial government, a sum not less than \$50,000,000 in improving and deepening the channels, and in building vast new docks in the Hamburg harbor, provided with every modern facility; and Bremen's improvements are notable.—Review of Reviews.

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MARINE WORK A SPECIALTY.

In General.

Congressman Loud introduced a bill (H. R. 5507) in the house, Monday, providing for licenses to certain officers of steam vessels.

Secretary Keep of the Lake Carriers' Association was in Washington during the early part of the week, and appeared before the river and harbor committee in an effort to secure legislation to regulate raft towing on the lakes.

A very interesting series of articles on the "Origin and Developments of Steam Navigation" by the late George H. Preble, rear admiral U. S. Navy, is now running in the United Service, a monthly review of military and naval affairs published by L. R. Hamersly & Co., No. 1510 Chestnut street, Philadelphia.

At a ball recently given by the M. E. B. A. of Detroit, the association was presented with a floral lake steamer, about 4 feet long and complete in every detail. The gift was from the Penberthy Injector Company of Detroit and was intended as a token of the many favors received by the Penberthy company from the members of the association.

Orders from foreign ship builders are becoming quite frequent with the American Ship Windlass Company of Providence,

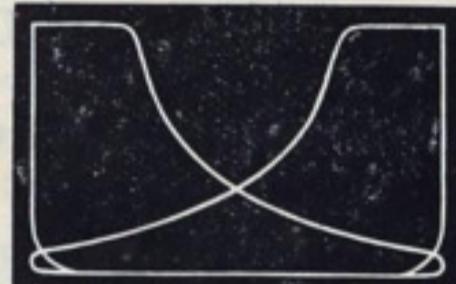
R. I. A few days ago the company received notice from its Liverpool agents that they had sold one No. C Providence crank power capstan and two No. E Providence barge power capstans to the ship King David, 2500 tons, building at Glasgow, Scotland; also one No. D Providence crank power capstan to J. R. Haws for his big ship Alcides, at Hull, England, besides two No. D Providence bar power capstans for the new bark No. 132, building by R. J. Evans & Co. at Liverpool, which vessel already had four No. C Providence crank power capstans from the firm.

Regarding charters of steamers to run in connection with the package freight liners of Buffalo next season, the Express of that city says: "The report that the Western Transit Company will engage the Gilbert, Gratwick and Weed is doubtless well founded, though it is denied that actual charters have been made yet. The reports of still larger boats to be chartered by that company may be taken with some allowance. There is also a report that the Anchor line is chartering outside tonnage. It is probable that the Lackawanna line will remain about as last season. The Clover Leaf line is without tonnage and is looking for two good boats. The Union line will build nothing for next season. The money looked for did not materialize."

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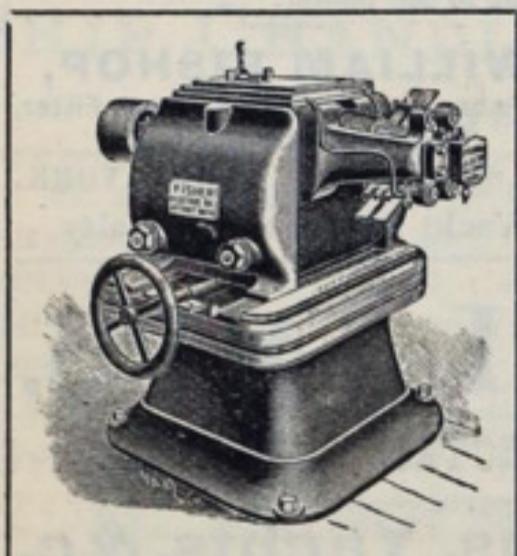
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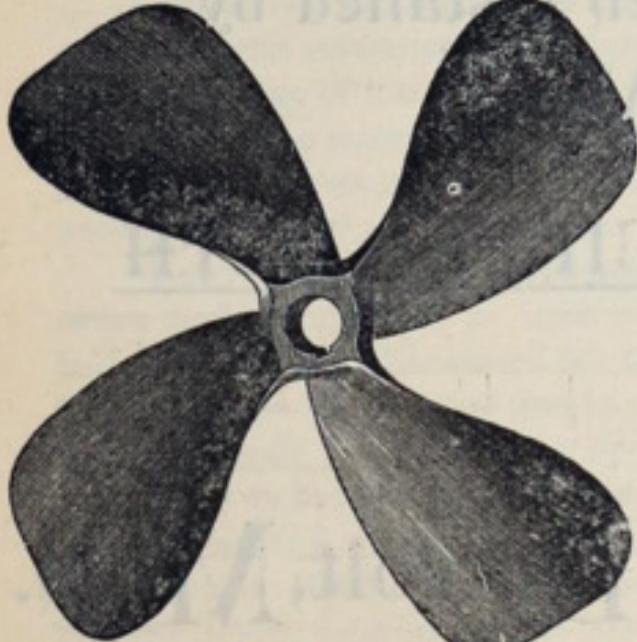
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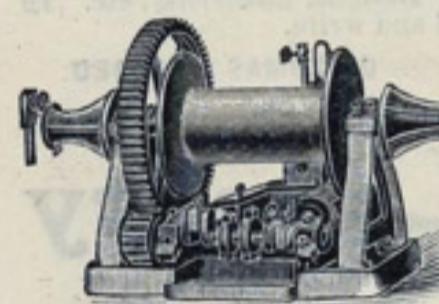
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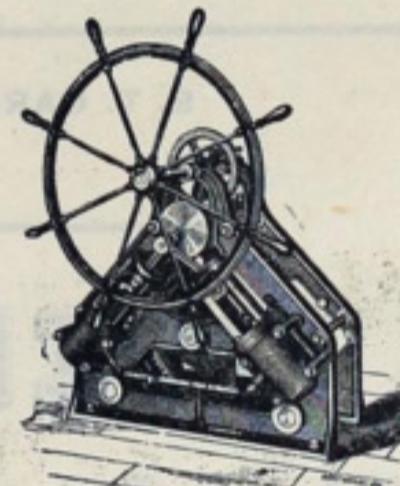
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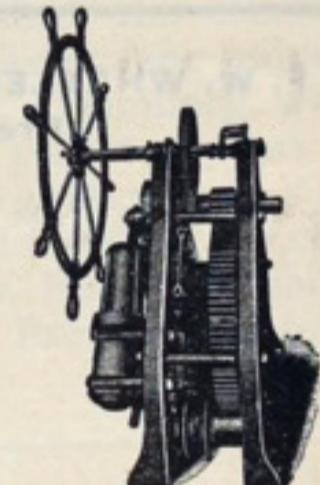
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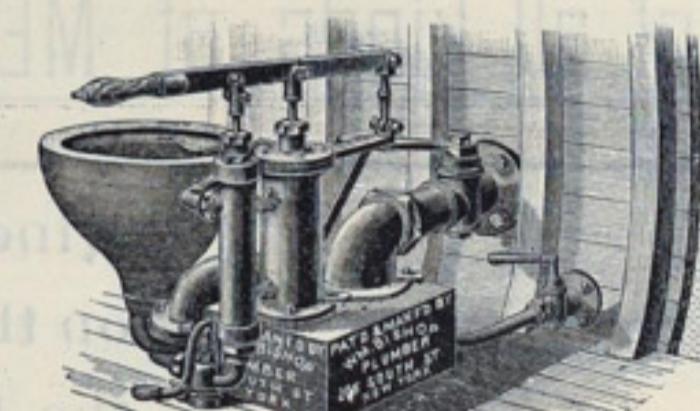
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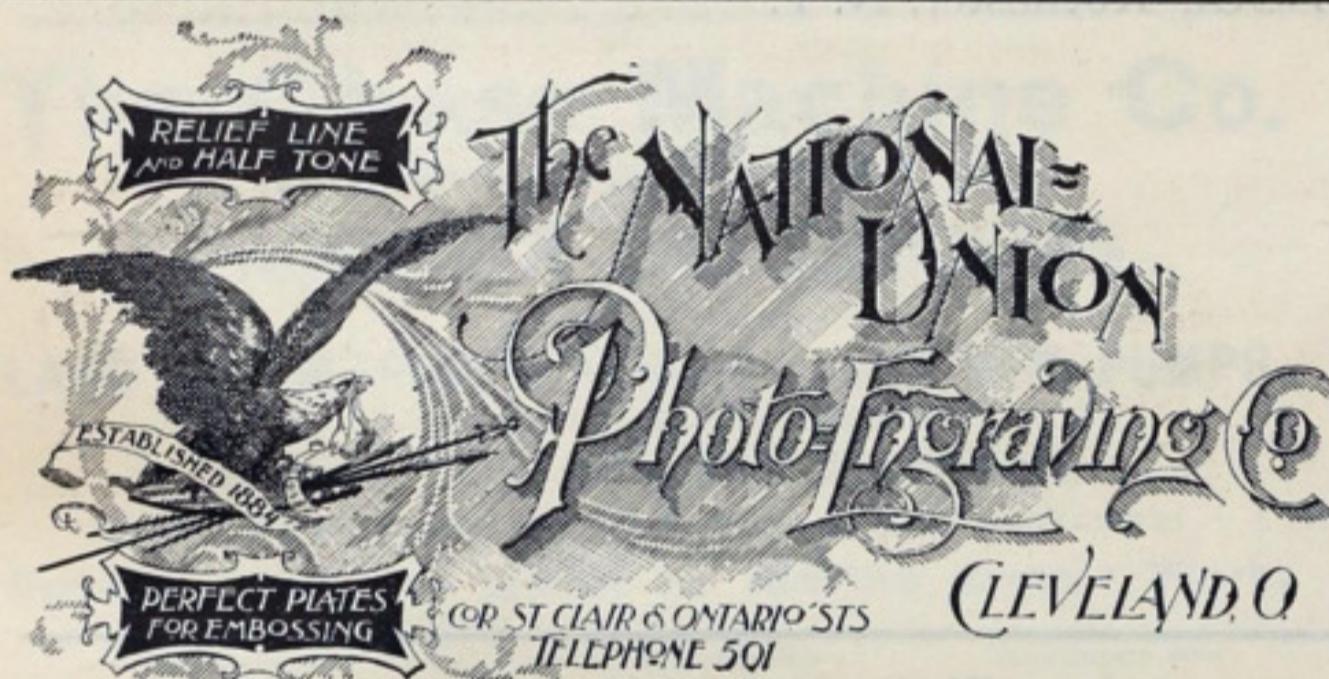
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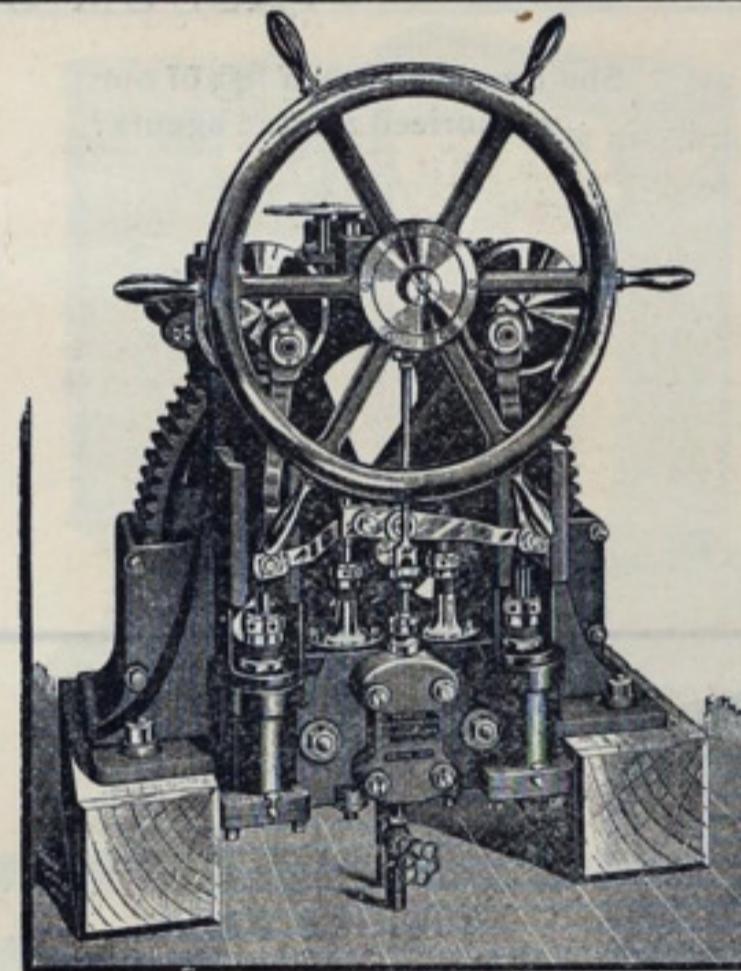
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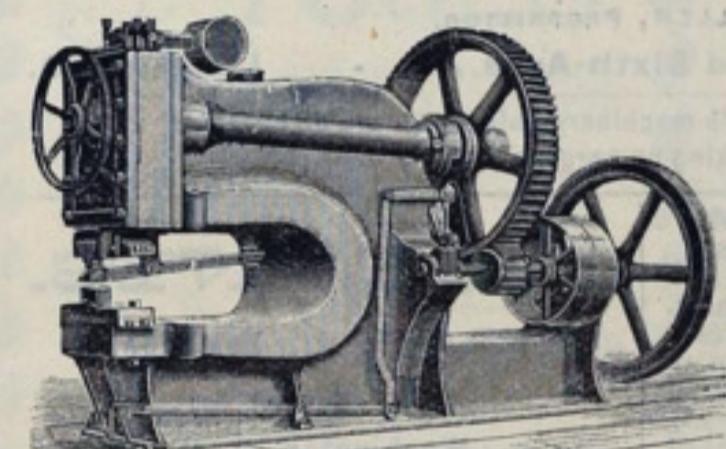
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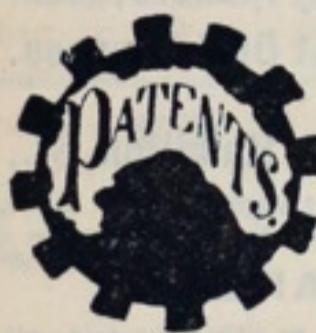
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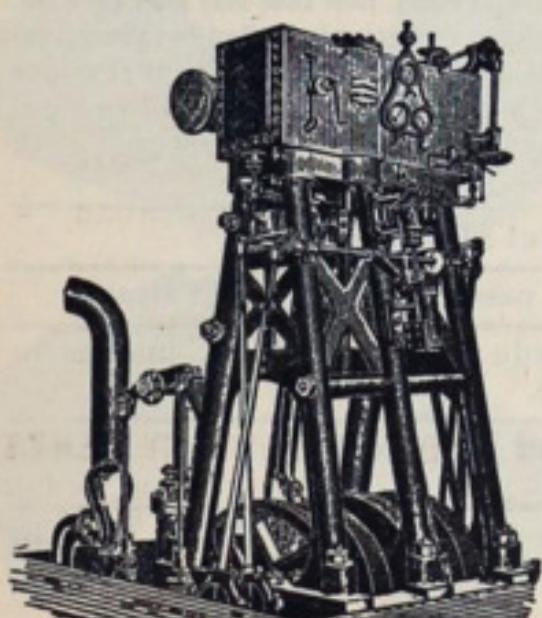
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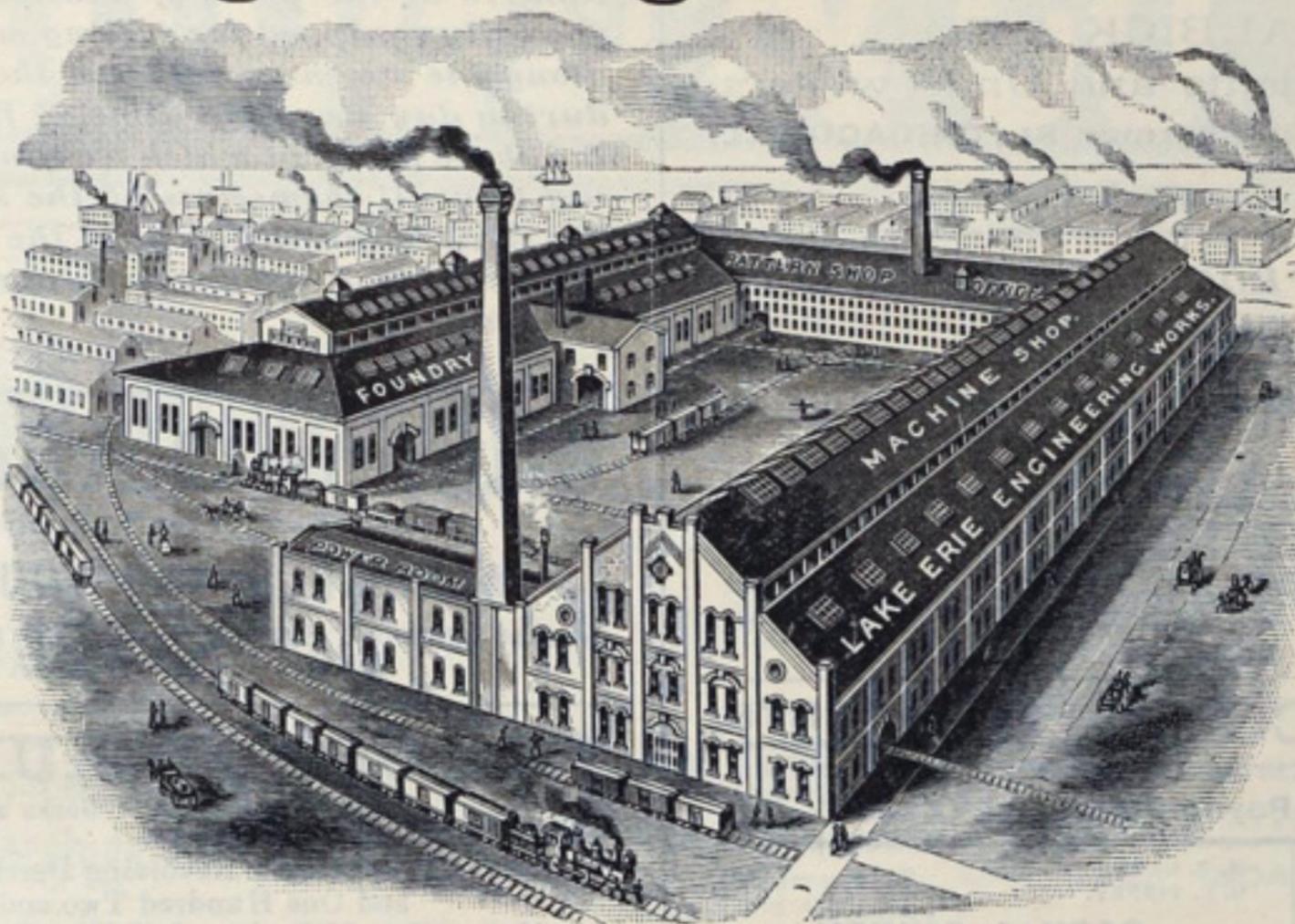
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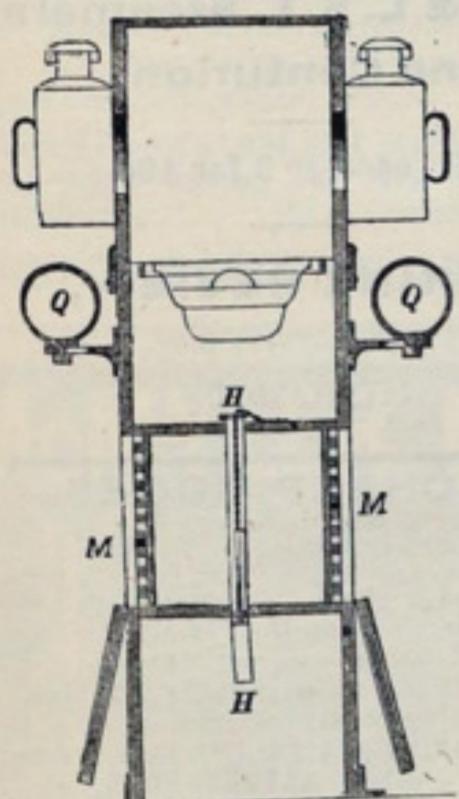
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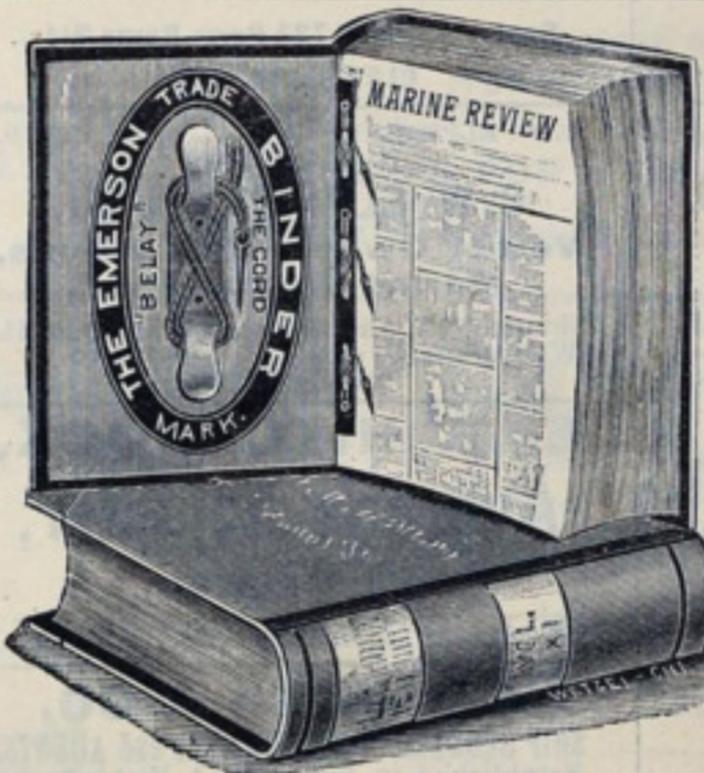
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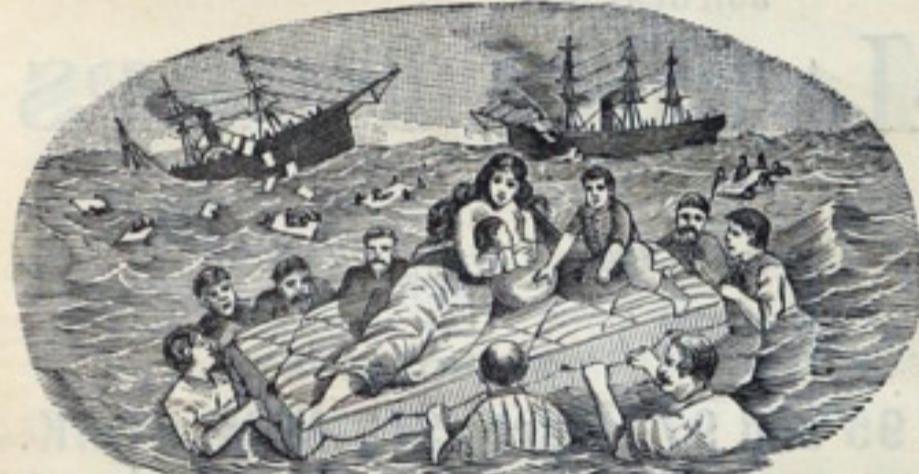
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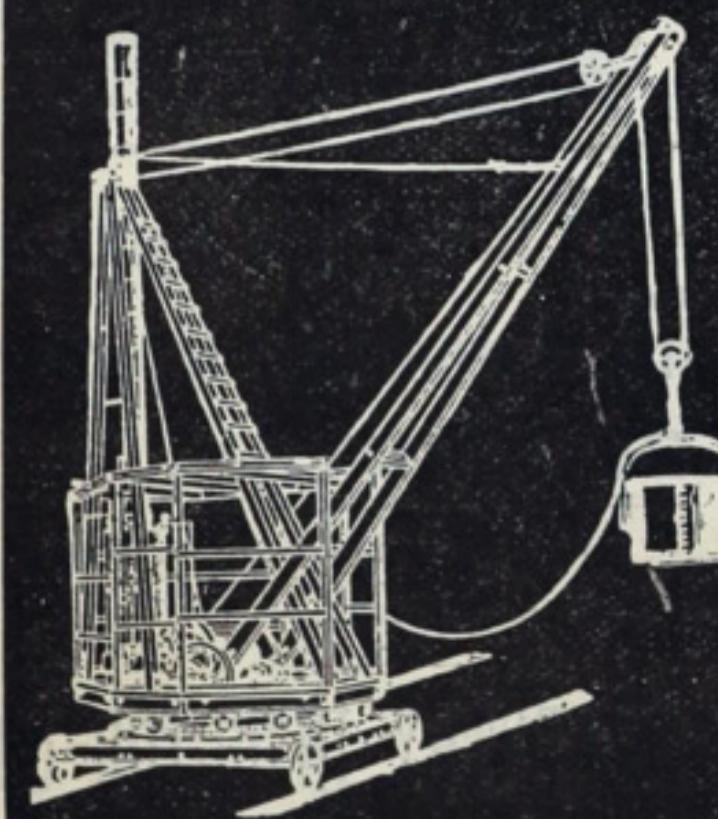
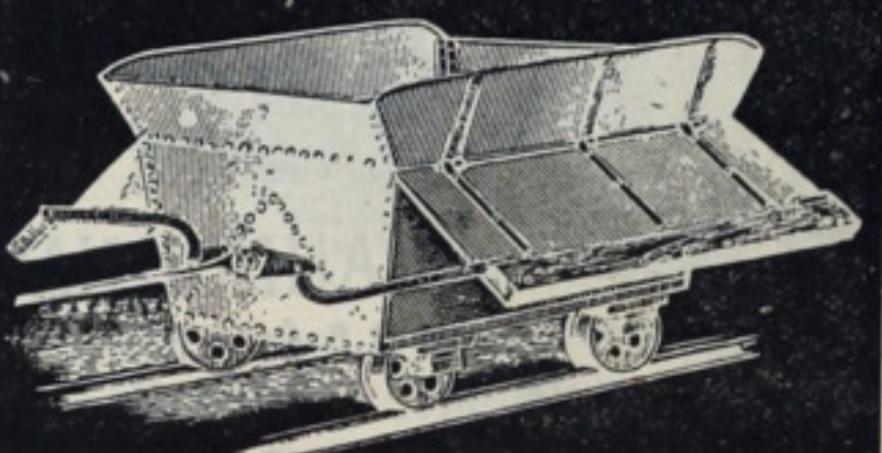
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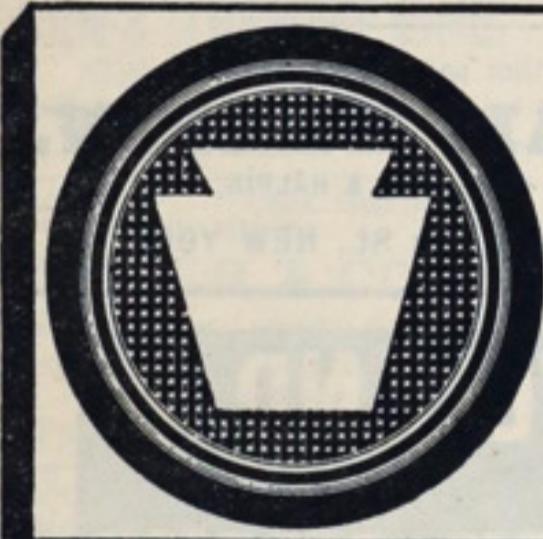
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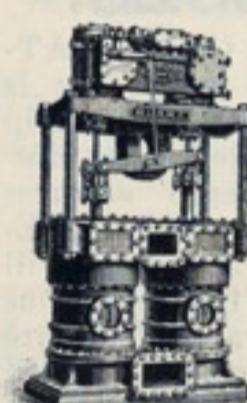
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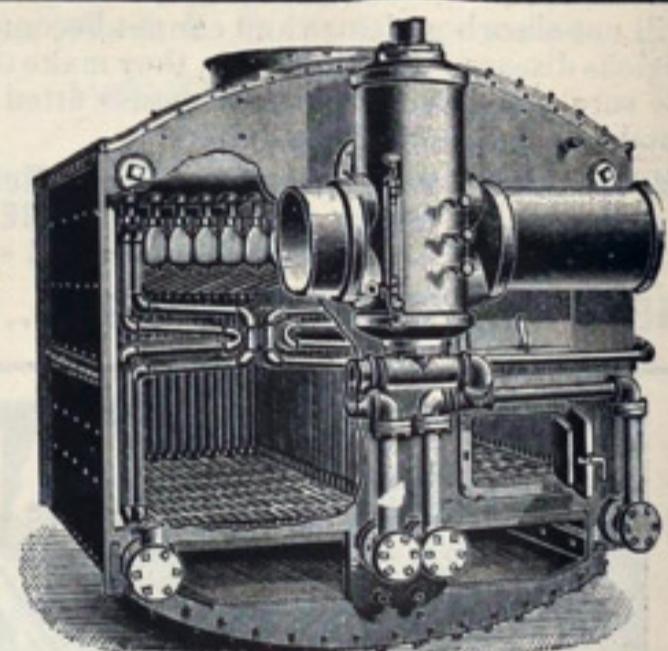
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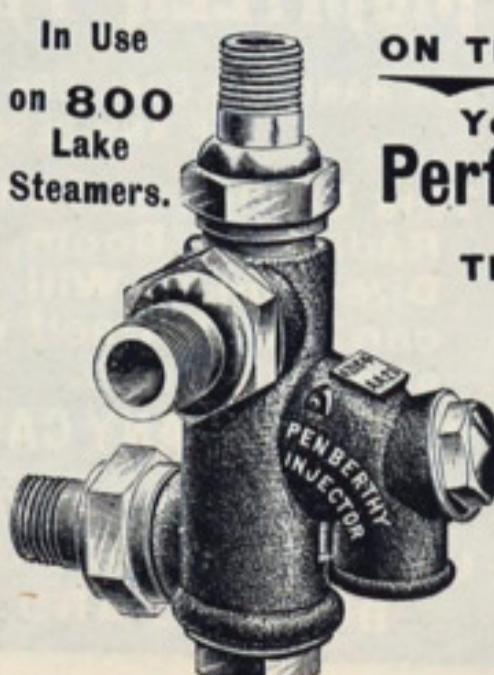
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